

10

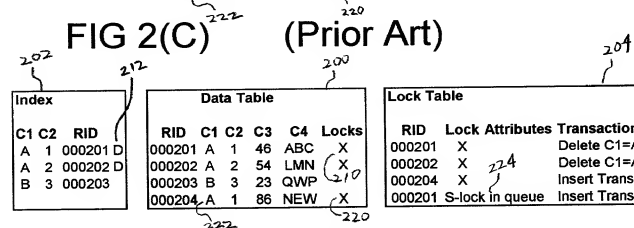
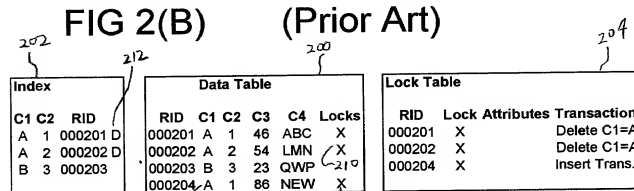
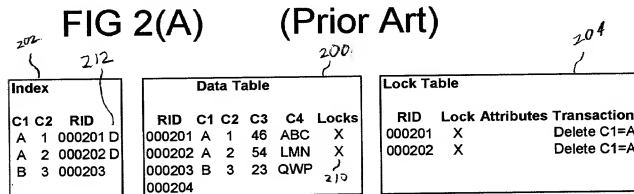
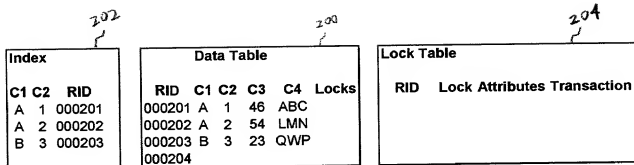


Diagram illustrating the state of the database after the second update operation (UPDATE EMP SET SAL = 20000 WHERE EMPNO = 2002). The tables shown are the Index, Data Table, and Lock Table.

Index		
C1	C2	RID
A	1	000204
A	2	000202 D
B	3	000203

Data Table					
RID	C1	C2	C3	C4	Locks
000201					
000202					
000203	B	3	23	QWP	
000204	A	1	86	NEW	X

RID	Lock	Attributes	Transaction
000204	X		Insert Trans.

Handwritten annotations in the diagram include '202' and '230' above the Index table, '200' above the Data Table, and '204' above the Lock Table. A bracket connects the RID column of the Index table to the RID column of the Lock Table.

FIG 2(E) (Prior Art)

202

200

204

Index			
C1	C2	RID	
A	1	000204	
A	2	000202 D	
B	3	000203	

Data Table						
RID	C1	C2	C3	C4	Locks	
000201						
000202						
000203	B	3	23	QWP		
000204	A	1	86	NEW		

Lock Table			
RID	Lock	Attributes	Transaction

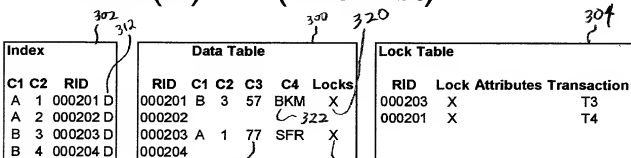
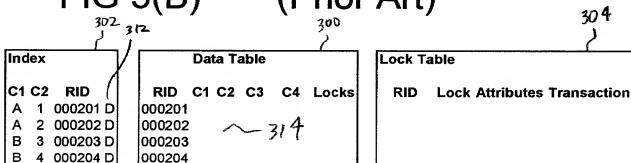
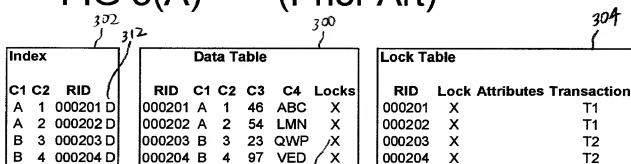
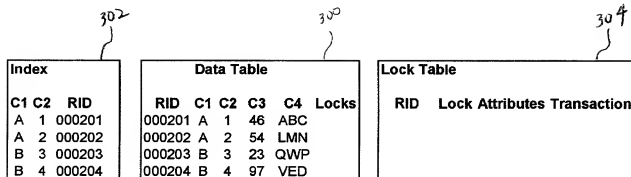


FIG. 3(E) (Prior Art)

C1	C2	RID
A	1	000201 D
A	2	000202 D
B	3	000203 D
B	4	000204 D

RID	C1	C2	C3	C4	Locks
000201	B	3	57	BKM	X
000202					
000203	A	1	77	SFR	X
000204					

RID	Lock	Attributes	Transaction
000203	X		T3
000201	X		T4
000201	S-lock in queue		T3

FIG 3(F) (Prior Art) illustrates a database structure with three tables: Index, Data Table, and Lock Table.

Index Table:

C1	C2	RID	D
A	1	000201	D
A	2	000202	D
B	3	000203	D
B	4	000204	D

Data Table:

RID	C1	C2	C3	C4	Locks
000201	B	3	57	BKM	X
000202					
000203	A	1	77	SFR	X
000204					

Lock Table:

RID	Lock	Attributes	Transaction
000203	X		T3
000201	X		T4
000201	S-lock	in queue	T3
000203	S-lock	in queue	T4

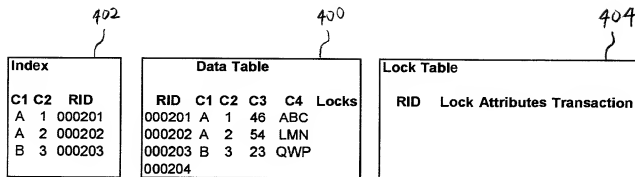


FIG 4(A)

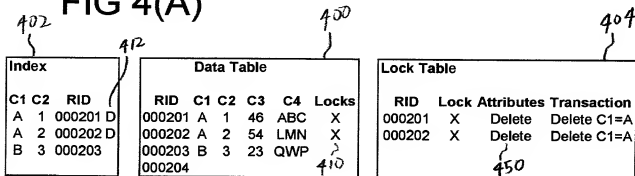


FIG 4(B)

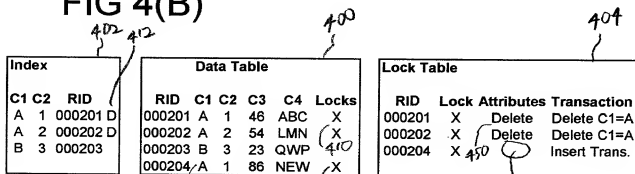


FIG 4(C)

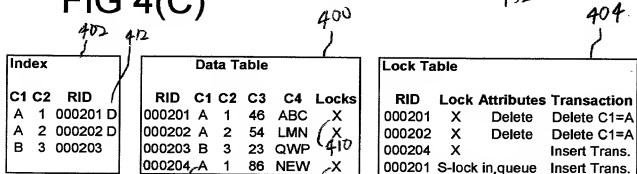


FIG 4(D)

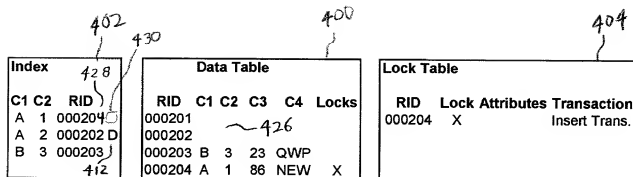


FIG 4(E)

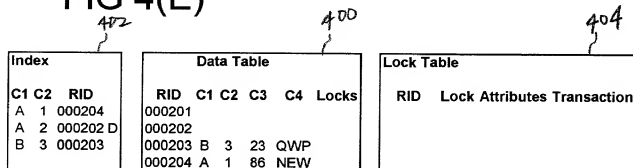
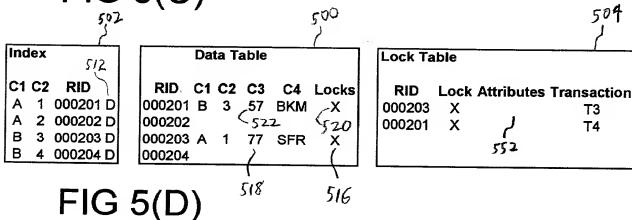
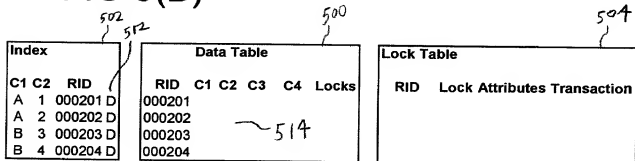
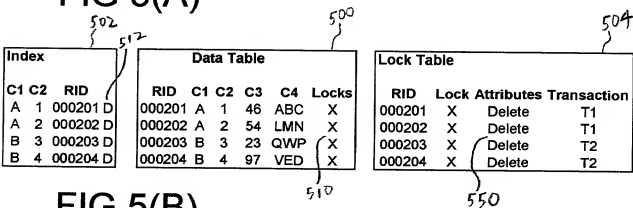
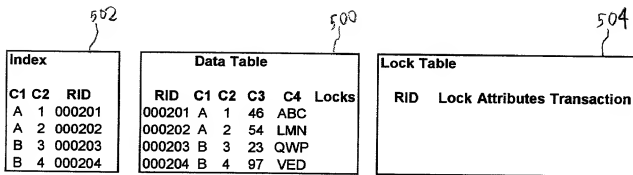


FIG 4(F)



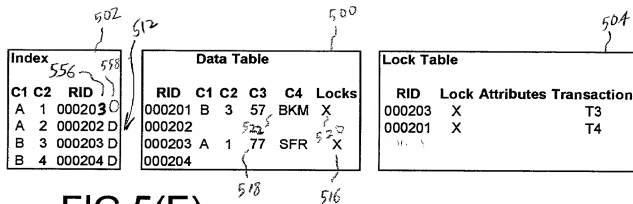


FIG 5(E)

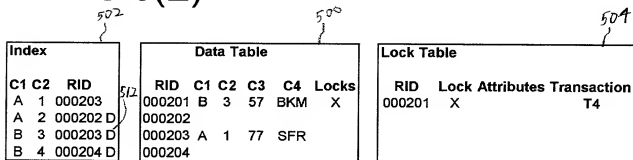


FIG 5(F)

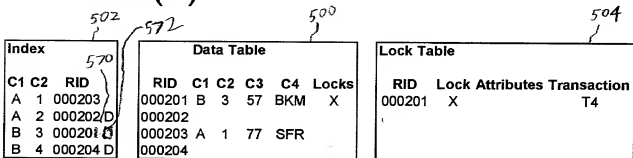


FIG 5(G)

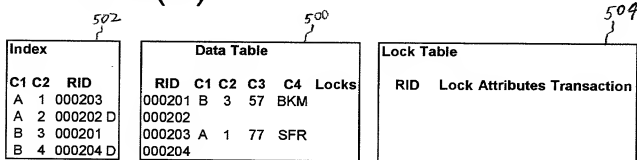


FIG 5(H)

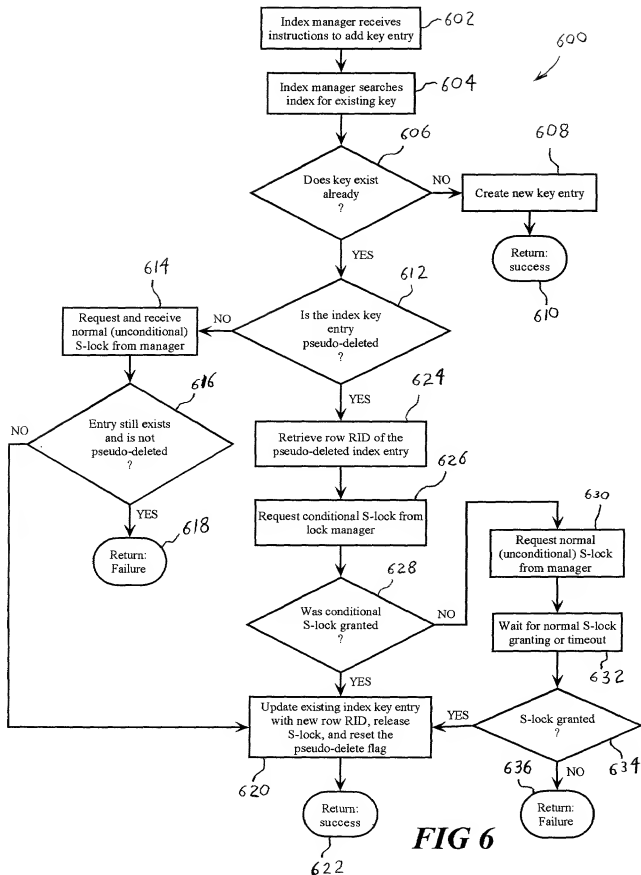


FIG 6